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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,223	08/08/2001	Stephen R. Gilbert	10004085-1	3141

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AGILENT TECHNOLOGIES
Legal Department, 51U-PD
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EXAMINER
MEEKS, TIMOTHY HOWARD

ART UNIT	PAPER NUMBER
1762	7

DATE MAILED: 08/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/925,223	GILBERT ET AL.	
	Examiner	Art Unit	
	Timothy H. Meeks	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 11-25* is/are rejected.

7)☒ Claim(s) *9,10 and 26-28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Application Status

The amendment filed on 11 July 2003 in response to the Office Action mailed on 09 April 2003 has been fully considered. In the amendment, applicants have amended claims 1, 9, and 23 and added claims 26-28. Claims 1-28 are pending.

Withdrawal of Rejections

The rejections set forth in the last office action based upon WO 00/49646 solely or as a primary reference are withdrawn in view of the amendments to claims 1 and 23. WO 00/49646 does not explicitly disclose the now claimed metering step of the combined precursor solution from a liquid source.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8 and 12-18 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 99/42282.

The claimed process is explicitly disclosed at page 17, 2nd paragraph, page 20, last paragraph, page 22, 1st paragraph, page 24, 2nd paragraph, page 25, full page, page 26, 1st paragraph, and Examples 1 and 2. With respect to claim 18, WO 99/42282 describes a "heated substrate" prior to deposition of the PZT, hence, preheating of the substrate is inherently

performed. With respect to claim 17, the lead to Zr and Ti ratios are inherently from the percentages of compounds found in the deposited film shown in the examples.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/42282 in view of WO 00/49646.

Octane based solvent is not disclosed in WO '282. However, because WO '646 discloses at page 14, lines 23-25 that an octane/polyamine solvent is operable for the precursors used in WO '282, it would have been obvious to use this precursor to dissolve the precursors of WO '282 in the octane-based solvent with a reasonable expectation of the solvent being operable for those precursors.

Claims 19-21 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over either WO 99/42282 in view of Horie et al. (6,387,182).

The primary references do not explicitly disclose preheating the substrate for the claimed times, or disposing the preheated substrate on a heated susceptor. However, because Horie discloses that preheating the substrate held above a heated susceptor using a heated gas prior to placing the substrate on the heated susceptor for deposition of a dielectric film such as PZT prevents thermal shock to the substrate (col. 4, line 64, col. 13, line 33 to col. 14, line 25, it

would have been obvious to have so preheated the substrate prior to placing on a heated susceptor for PZT deposition to prevent thermal shock to the substrate. The heating time would clearly depend on such factors such as size of the substrate, thermal conductivity of the gas for preheating, distance of the substrate from the gas nozzle, etc., and hence derivation of the claimed times through routine experimentation for optimization would have been obvious.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over either WO 99/42282 in view of Yamamuka et al. (6,312,526).

The primary references do not disclose flow a purge gas to reduce film deposits on the susceptor and chamber walls. However, because Yamamuka discloses that providing such purge gas flow prevents condensing of the source gas within the reaction chamber during deposition of films such as PZT and hence reduces particle contamination (col. 1, line 38, col. 4, line 60 to col. 5, line 9), it would have been obvious to have provided such purge gas flow to prevent particle contamination.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over either WO 99/42282 in view of Horie et al., as applied above, and further in view of Yamamuka et al.

Provision of the purge gas flow to prevent particle contamination would have been obvious for the reasons established in the paragraph directly above.

Response to Arguments

Applicant's arguments filed 11 July 2003 have been fully considered but they are not persuasive.

Applicants argue that WO 99/42282 does not disclose metering a premixed solution containing the precursors from a liquid source because figure 3 provides each precursor from a different reservoir. However, WO 99/42282 clearly discloses at page 17 that the precursors can be supplied to the vaporization zone in combination. Furthermore, figure 3 of WO 99/422282 anticipates the limitation of "metering from a liquid source a selected quantity of a premixed.....in a solvent media" in that the liquid pump 68 is a liquid source containing a premixed solution of the precursors (the precursor solutions are mixed in line 58) and selected quantities of the premixed solution are metered from the pump to the vaporization zone.

Applicants argue patentability of the dependent claims based upon their dependence from independent claims believed by applicants to be patentable. As the independent claims are not patentable at this time for the reasons established above, this argument is not convincing.

Allowable Subject Matter

Claims 9, 10, and 26-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. It is noted that applicants state at page 3 of the 11 July 2003 response that claim 9 was mended to independent form. It is noted, however, that the amendment made therein results in claim 9 remaining dependent from claim 1.

The following is a statement of reasons for the indication of allowable subject matter: There is no teaching or suggestion to mix two solutions that both contain all three of the metal precursors.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy H. Meeks whose telephone number is (703) 308-3816. The examiner can normally be reached on Mon., Tues., Thurs.(6-6:30), Fri.(6:30-10:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Timothy H. Meeks
Primary Examiner
Art Unit 1762

final
August 14, 2003